REMARKS

Claims 1-183 and 186-190 are now pending in the above-referenced patent application. Claims 186-190 have been amended and claim 191 has been canceled. Applicants respectfully request further consideration of these claims, in view of the amendments set forth above and the following remarks.

Amendments to the Specification

The specification has been amended to update the status of the parent application and various other related applications referenced therein. No new matter has been added.

Amended Claims

Claims 186-190 have each been amended to address clarity issues without change in the scope thereof.

No new matter has been added.

Cancelled Claims

Claim 191 has been cancelled to advance the prosecution of the instant case. Applicants expressly reserve the right to refile the cancelled claim, without prejudice, in a continuing application. Applicants' cancellation of this claim should not, in any way, be considered as an admission with respect to any outstanding rejections applying to such claim, and Applicants hereby expressly deny any such interpretation. Likewise, Applicants cancellation of this claim should not, in any way, be considered as a surrender of any subject matter covered by the cancelled claim or any equivalents thereof, and Applicants hereby express their intent to pursue patent coverage for such subject matter and equivalents thereof.

Objection to Specification

The disclosure has been objected to regarding the status of the provisional applications. Applicants have amended the specification to obviate this objection.

Rejection Under 35 U.S.C. § 112 (Indefiniteness)

Claims 186-190 stand rejected as allegedly indefinite. Applicants have amended the claims to clarify that the claims are directed to a system which includes at least four cavities.

In view of these amendments, Applicants submit that the claims are definite and request the rejection be withdrawn.

Rejections Under 35 U.S.C. § 103(a) (Creer *et al.*, Calleja *et al.*, Soutgate *et al.*, Roberts *et al.*)

The Office action rejects claims 1-183 and 186-190 under 35 U.S.C. § 103(a) based on Creer *et al.* (1986) in view of Calleja *et al.* (1995), U.S. Patent No. 3,875,499 to Roberts *et al.* and U.S. Patent No. 5,863,502 to Southgate *et al.*

Applicants respectfully traverse these rejections.

The Office does not establish a *prima facie* case of obviousness.

Independent claims 1 and 177 require a set of four or more flow restrictors that are passive flow restrictors for control of flow, pressure and/or feed-composition to inlets of each of the four or more reactors. Independent claims 2 and 178 require that the set of four or more flow restrictors for control of flow, pressure and/or feed-composition to inlets of each of the four or more reactors are integral with a substrate or with a microchip body mounted on a substrate. Independent claim 7 requires a flow-partitioning subsystem for providing a different flow rate to each of four or more reactors, the flow-partitioning subsystem comprising at least one set of four or more passive flow restrictors. Independent claim 21 requires a pressure-partitioning subsystem for providing a different reaction pressure in the reaction cavity of each of the four or more reactors, the pressure-partitioning subsystem comprising at least one set of four or more passive flow restrictors

There is no motivation existing *in the art* that would have led a person of ordinary skill to modify the Creer *et al.* reference in a manner that would have led to Applicants' invention. Creer *et al.* and Calleja *et al.* are directed toward heterogenous catalysis, whereas Southgate *et al.* are directed toward PCR amplification and Roberts *et al.* are directed to gas detection systems using a single detector. There is no rational basis for combining these references – without using impermissible hindsight.

It should be considered that Creer *et al.* suggest that further developments could be directed towards improvements in flow control, but they teach that such improvement could be

realized using "electronic, digitally operated flow controllers" – active flow control elements. Hence, there is no suggestion in the art for modifying the parallel reactor of Creer *et al.* to (i) include passive flow restrictors, or to (ii) include flow restrictors integral with a substrate or a microchip body mounted on a substrate.

The Office action posits, nonetheless, that

> it would have been obvious to replace the conventional flow controllers of Creer with fixed flow restrictors as taught by Roberts because the reduction in possible error with a variable restrictor and the simplification as taught by Roberts. It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the parallel reactor system of Creer in a format as taught by Southgate because of the size (volume) and meaningful results advantages taught by Southgate for the parallel reaction cassette of Southgate.

See page 7 of the Office action.

However, the Office action fails to appreciate that the system of Creer *et al.* includes a plurality of reactors having a mass flow controller associated with each reactor, and the system of Roberts *et al.* uses a plurality of passages, each having a different sized orifice, for delivering different compositions of materials to a single detector. First, the system of Roberts *et al.* is not used to provide different flow rates to the detector, but different compositions. Additionally, in order to provide different flows to each of the reactors of Creer *et al.*, as is an intended application of that system, a plurality of lines, one for each orifice would be required to be associated with each reactor. This would require complex design issues.

Furthermore, the asserted rationale – the small size and desire for meaningful results – is too general to motivate a skilled artisan to arrive at the specific invention defined by Applicants' claims. *See In re Fine,* 5 USPQ2d 1596 (Fed. Cir. 1988); *In re Dow Chemical Co.,* 5 USPQ2d 1529 (Fed. Cir. 1988); *In re Geiger*, 2 USPQ2d 1276 (Fed. Cir. 1987). The law requires a more specific suggestion in the art than merely the generalizations articulated in the Office action.

In addition, notably, the asserted generalities are not even necessarily applicable to the instant situation. For example, the volume of the reaction cavities of Applicants' invention is not limited in the independent claims and is preferably substantially larger than the preferred reactor volume of 1 µl as taught by Southgate *et al.* (*See,* Col. 2, lines 21-26 of Southgate *et al.*); also, Southgate *et al.* expressly teach that meaningful results are assured by performing multiple, parallel reactions using the *same* reagents for each sample (*See,* Col. 2, lines 27-31 of Southgate

et al.), which is not particularly relevant to Applicants' inventions (*e.g.*, involving varied feed distribution).

Modification Would Render Prior Art Embodiment Unsuitable

It is well settled that no suggestion or motivation can be established for proposed modifications to a prior art embodiment, where such modifications would render the prior art embodiment unsuitable or unsatisfactory for its intended purpose. *See* MPEP 2143.02; *In re Gordon,* 221 USPQ 1125 (Fed. Cir. 1984).

In the present case, a skilled artisan would not have been motivated to modify the parallel microreactor system disclosed by Creer *et al.* such that the active mass flow controllers are replaced with passive flow restrictors, since such modification would have rendered the Creer microreactor unsuitable for its intended purpose. That is, if the active mass flow controllers associated with each of the rectors were replaced with passive flow restrictors, it would not be possible to test different catalysts with the same gas feeds as is one objective of the system of Creer *et al.* See *Creer,* page 89, lines 7-9. The different sized flow restrictors would provide a different flow to each reactor. One intended use of the system of Creer *et al.* is to be used for testing different catalysts with similar feeds.

Hence, the Office action does not establish that the inventions defined by claims 1-183 and 186-190, would have been *prima facie* obvious.

The Office Action Relies on Hindsight

In view of the lack of motivation and other deficiencies noted above, the Office action appears to be relying on Applicants' specification to improperly extrapolate the teachings of Creer *et al.*, and to improperly combine the teachings of Creer *et al.* with arbitrarily selected portions of other references – without proper motivation for such extrapolation and combination existing in the prior art.

In view of the repeated warnings by the Federal Circuit against hindsight reconstruction (*i.e.*, against finding the required motivation in the guidance of the instant specification), Applicants respectfully submit that such extrapolation is improper under the law. *See*, for example, *Grain Processing Corp. v. American Maize-Products Co.*, 5 USPQ2d 1788 (Fed. Cir. 1988) (stating that obviousness cannot be established by merely showing that each element of the

patented products may be found somewhere in the prior art). *See* also *In re Vaeck*, 20 USPQ2d 1438 (Fed. Cir. 1991), and *In re Dembiczak*, 50 USPQ2d, 1614 (Fed. Cir. 1999). *See* also *In re Kotzab*, 54 USPQ2d 1308 (Fed. Cir. 2000) (holding that an invention was not obvious, even though based on technologically simple concepts from a combination of known elements, since the there was an absence of a specifically-identified understanding within the knowledge of a skilled artisan that would have motivated one to make the particular claimed invention).

Hence, the inventions would not have been obviousness over the art of record. Applicants respectfully request that this basis for rejection be withdrawn.

Equivalents

The amendments to the claims and the arguments presented in response to the Office action have been made to claim subject matter which the Applicants regard as their invention. By such amendments, the Applicants in no way intend to surrender any range of equivalents beyond that which is needed to patentably distinguish the claimed invention as a whole over the prior art. Applicants expressly reserve patent coverage to all such equivalents that may fall in the range between applicants literal claim recitations and those combinations that would have been obvious in view of the prior art

CONCLUSION

In view of the foregoing, Applicants believe all claims now pending in this Application are in condition for allowance. The issuance of a formal Notice of Allowance at an early date is respectfully requested.

The Examiner is hereby authorized to charge the fees required in connection with this Amendment C to Deposit Account No. 50-0496, in accordance with the Transmittal submitted herewith. The Examiner is also authorized to debit any other fees required in connection with this application, or to credit any overpayment of fees in connection with this application to Deposit Account No. 50-0496.

Respectfully submitted,

Date Submitted: 9/30/05

James H. Ackley
Reg. No. 45,695

Symyx Technologies, Inc.
3100 Central Expressway
Santa Clara, CA 95051
(408) 720-2598